

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough; and 2. added matter is shown by underlining.

1. (Currently Amended) An EM transmitter~~(11)~~ comprising a current source~~(not shown)~~ and a dipole antenna~~(17)~~, the dipole antenna~~(17)~~ comprising a first electrode~~(18)~~ mounted on a cable~~(19)~~ and located near to the current source and a second electrode~~(21)~~ mounted on a cable~~(22)~~ and located further away from the current source, each electrode~~(18, 21)~~ being electrically connected to the current source.
2. (Currently Amended) An EM transmitter as claimed in claim 1, ~~characterised in that~~ wherein the electrodes~~(18, 21)~~ are mounted on different cables.
3. (Currently Amended) An EM transmitter as claimed in claim 1 ~~or claim 2~~, ~~characterised in that~~ wherein the electrodes~~(18, 21)~~ are spatially arranged on the corners of a triangle or the corners of a square.
4. (Currently Amended) An EM transmitter as claimed in claim 1 ~~or claim 2~~, ~~characterised in that~~ wherein there are two electrodes arranged in line.

5. (Currently Amended) An EM transmitter as claimed claim 1 ~~in any preceding claim,~~  
~~characterised in that~~ wherein the outer surface of the electrodes ~~(18, 21)~~ is formed from a  
non-corrosive metal.
6. (Currently Amended) An EM transmitter as claimed in claim 5, ~~characterised in that~~  
~~wherein~~ the metal is copper or aluminium or platinum-plated titanium, or rhodium or  
magnesium.
7. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any of claims 1 to 6,~~  
~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are tubular.
8. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any of claims 1 to 6,~~  
~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are cylindrical.
9. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~  
~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ lie flush with the cable surface.
10. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~  
~~characterised in that~~ wherein the surface of the electrodes is in the form of a grid.
11. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~  
~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ further comprise buoyancy elements to  
render the electrodes neutral buoyant.

12. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim~~, ~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are between 1 m and 10 m in length.

13. (Currently Amended) An EM transmitter as claimed in claim 12, ~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are between 4 m and 8 m in length.

14. (Currently Amended) An EM transmitter as claimed in claim 13, ~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are 6 m in length.

15. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim~~, ~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are spaced apart by a distance of between 100 m and 1000 m.

16. (Currently Amended) An EM transmitter as claimed in claim 15, ~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are spaced apart by a distance of between 200 m and 500 m.

17. (Currently Amended) An EM transmitter as claimed in claim 16, ~~characterised in that~~ wherein the electrodes ~~(18, 21)~~ are spaced apart by a distance of between 250 m and 300 m.

18. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim~~, ~~characterised in that~~ wherein each cable ~~(19, 22, 41)~~ comprises a power conductor ~~(43)~~ and an electrically insulating outer sheath ~~(42)~~ and is connected to a body ~~(15)~~ containing the current source.

19. (Currently Amended) An EM transmitter as claimed in claim 18, ~~characterised in that~~ wherein the power conductor ~~(43)~~ is in a braided annular form.

20. (Currently Amended) An EM transmitter as claimed in claim 19, ~~characterised in that~~ wherein the electrically insulating outer sheath ~~(42)~~ is water-impermeable and chemically stable in sea water.

21. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~ ~~characterised in that~~ wherein each cable ~~(19, 22, 41)~~ is sufficiently flexible to be wound on a storage drum.

22. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~ ~~characterised in that~~ wherein each cable ~~(19, 22, 41)~~ further comprises either sensor wires ~~(47)~~ or optical fibres ~~(48)~~ or both.

23. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~ ~~characterised in that~~ wherein each cable ~~(19, 22, 41)~~ further comprises depth transducers ~~(23, 31)~~ close to the electrodes ~~(18, 21)~~ and a temperature sensor and a further depth transducer ~~(32)~~ located at the halfway point of the cable.

24. (Currently Amended) An EM transmitter as claimed in claim 1 ~~any preceding claim,~~ ~~characterised in that~~ wherein each cable ~~(19, 22, 41)~~ comprises buoyancy elements ~~(45)~~ imparting slight buoyancy to towing depths of 3500 m.

25. (Currently Amended) An EM transmitter as claimed in claim 18~~any of claims 18 to 24, characterised in that~~ wherein each cable~~(19, 22)~~ is continuous.

26. (Currently Amended) An EM transmitter as claimed in claim 18~~any of claims 18 to 24, characterised in that~~ wherein each cable~~(19, 22)~~ comprises interconnected sections being between 50 m and 100 m in length, preferably 75 m.

27. (Currently Amended) An EM transmitter as claimed in claim 1~~any preceding claim, characterised in that~~ wherein the overall diameter of each cable~~(19, 22)~~ is between 80 mm and 200 mm, preferably 120 mm.

28. (Currently Amended) An EM transmitter as claimed in claim 1~~any preceding claim, characterised in that~~ wherein each cable~~(19, 22)~~ is arranged to generate a voltage sufficient to provide a current of 100 A to 10,000 A.

29. (Currently Amended) An EM transmitter as claimed in claim 28, ~~characterised in that~~ wherein each cable~~(19, 22)~~ is preferably arranged to generate a voltage sufficient to provide a current of 500 A to 2000 A.

30. (Currently Amended) An EM transmitter as claimed in claim 29, ~~characterised in that~~ wherein each cable~~(19, 22)~~ is preferably arranged to generate a voltage sufficient to provide a current of 1000 A.

31. (Currently Amended) An EM transmitter as claimed in claim 1~~any preceding claim~~, further including an acoustic positioning transponder trailed from the antenna.

32. (Currently Amended) An EM transmitter as claimed in claim 1~~any preceding claim~~, further including an EM immune databus system, by means of which sensor and command signals are communicated.

33. (Currently Amended) A method of EM surveying beneath the ocean floor using an EM transmitter~~(11)~~ as claimed in claim 1~~any of claims 1 to 32~~, characterised in that wherein the EM transmitter~~(11)~~ is deployed on the ocean floor.

34. (Currently Amended) A method of EM surveying beneath the ocean floor using an EM transmitter~~(11)~~ as claimed in claim 1~~any of claims 1 to 32~~, characterised in that wherein the EM transmitter~~(11)~~ is deployed by towing behind a vessel~~(14)~~ as a cable or streamer.

35. (Currently Amended) A method of producing a survey report which comprises deploying a transmitter as claimed in claim 1~~any of claims 1 to 32~~, deploying one or more EM receivers; applying an EM wavefield to subsea strata using the EM transmitter; detecting the EM wavefield response using the EM receivers; analysing the EM wavefield response; and generating the survey report following the analysis.